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EXAMINER

ESTREMSKY, SHERRY LYNN

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,126

Applicant(s)

ALLEN ET AL.

Examiner

Sherry L Estremsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claims 10 and 12 are objected to because of the following informalities: it appears the solitary "e" at the end of line 13 in claim 10 should be deleted; since claim 12 is considered by the examiner as ending with the period in line 9, it appears the following six lines should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite because it claims a transfer case in lines 4 and 5, then separately and additionally claims an epicyclic gearset and a coupler, which are disclosed as being part of the transfer case.

In claim 3, line 3, "the transmission" is indefinite because it lacks antecedent basis. A multiple speed transmission was first claimed in claim 2 (claim 3 is dependent on claim 1).

In claim 4, line 3, "the transmission" is indefinite because it lacks antecedent basis.

In claim 7, line 3, it is not clear what is meant by the transfer case being fixed against rotation. The transfer case, as described in the specification and as generally understood in the art, is a portion of the driveline of a vehicle that transmits power from a prime mover to the front and rear drive shafts. A unit that transmits rotational power cannot be fixed against rotation. The claim itself contradicts the "fixed against rotation" limitation in claiming that the transfer case includes a power input and an output for "drive connection to at least one wheel". It is noted however, that a portion of the transfer case, the casing 16 (specification page 6, line 27), is fixed against rotation.

Claim 7, as in claim 1, is indefinite in claiming an epicyclic gearset and coupler in addition to and separate from the transfer case, when the transfer case has been disclosed as including the gearset and coupling.

In claim 7, lines 11-13, it is not clear how the coupler may be adapted for connection to the transfer case, since it is disclosed as part of the transfer case. For the purpose of this action, it is assumed that the coupler is adapted for connection to a casing of the transfer case.

In claims 9 and 10, line 4, "the transmission" is indefinite because it lacks antecedent basis. A multiple speed transmission was claimed in claim 8, but claims 9 and 10 are dependent on claim 7.

In claim 10, the intended meaning of "the transmission" in line 4 is further made unclear by the claiming of "a multiple speed transmission" in line 6.

In claim 13, line 4, it is not clear how the transfer case can be accurately claimed as being fixed against rotation.

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In claim 15, line 1, "the connector" is indefinite because it lacks antecedent basis.

In claim 15, line 3, "the gear selector" is indefinite because it lacks antecedent basis.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bowen, U. S. Patent 6,575,866 in view of Bober et al., U. S. Patent 6,161,643.

Bowen shows in figures 2 and 8 a park brake mechanism for braking a drive line that transmits power to the wheels 20,30 of a motor vehicle.

Transfer case 230 has an input (column 9, line 14) and an output 16/232 adapted for a drive connection to at least one wheel. The output shaft 42 of the transmission shown in figure 2 is the input for the transfer case (figure 8, column 9, lines 13-15).

A park gear 182 is driveably connected to the input.

A pawl 184 is supported for releasable engagement with the park gear 182 and preventing rotation of the park gear due to the engagement (column 7, lines 34-39).

(claim 1)

Bowen does not show an epicyclic gearset connected to the input and output to produce high and low ranges with a coupler.

Bober et al. discloses a transfer case having an input 26 and an output 32/36 adapted for a drive connection to at least one wheel (figure 2).

Epicyclic gearset 28 is driveably connected to the input and output and is adapted to produce alternately a high range of output speed (output connected directly to the input) and a low range of output speed.

Coupler 30 including a selector is moveable alternately between a first position where the gearset produces the high range and a second position where the gearset produces the low range (column 4, lines 47-51).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Bowen to include an epicyclic gearset and coupler in view of Bober et al. because such an arrangement is conventionally used to provide the ability to effectively drive a four wheel drive vehicle in a variety of driving conditions.

5. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowen in view of Pritchard et al., U. S. Patent 5,890,986.

Bowen shows in figures 2 and 8 a park brake mechanism for braking a drive line that transmits power to the wheels 20,30 of a motor vehicle.

Transfer case 230 has an input (column 9, line 14) and an output 16/232 adapted for a drive connection to at least one wheel. The output shaft 42 of the transmission shown in figure 2 is the input for the transfer case (figure 8, column 9, lines 13-15).

A park gear 182 is driveably connected to the input.

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A pawl 184 is supported for releasable engagement with the park gear 182 and preventing rotation of the park gear due to the engagement (column 7, lines 34-39).

(claim 1)

A multiple speed transmission 14 is shown in figure 8 to be generally aligned with the transfer case 230. Though not specifically shown (but suggested by the "stationary members"), the transmission is understood to include a case. The transmission output is driveably connected to the input of the transfer case (column 9, lines 13-15).

(claim 2)

Bowen does not show an epicyclic gearset connected to the input and output to produce high and low ranges with a coupler, nor aligned openings in the transfer case and transmission case through which the transmission output is driveably connected to the transfer case input.

Pritchard et al. shows in figure 2 a multispeed transmission with a case having an opening in which bearing 88 is mounted. A transfer case 46 includes an epicyclic gearset 62 and a coupler 70 to produce alternately a high range of speed and a low range of speed. A transfer case casing portion on which a ring gear of the epicyclic gearset 62 is mounted includes an opening. The openings in the transmission case and transfer case (casing) are aligned with the transmission output being driveably connected to the transfer case input through the openings.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Bowen to include an epicyclic gearset with coupler and aligned openings in the transfer case and transmission case in view of Pritchard et al. because an arrangement with the epicyclic gearset and coupler is conventionally used to accommodate different road surfaces and conditions (Pritchard et al., column 1, lines 15-22), and aligning

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openings in the transmission case and transfer case allows use of two separate units that arranged and interconnected in a space saving manner (Pritchard et al., column 1, lines 26-43).

6. Claims 7, 8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowen in view of Brown et al., U. S. Patent 6,398,688.

Bowen shows in figures 2 and 8 a park brake mechanism for braking a drive line that transmits power to the wheels 20,30 of a motor vehicle.

Transfer case 230 has a casing fixed against rotation, an input (column 9, line 14), and an output 16/232 adapted for a drive connection to at least one wheel. The output shaft 42 of the transmission shown in figure 2 is the input for the transfer case (figure 8, column 9, lines 13-15).

A park gear 182 is driveably connected to the input.

A pawl 184 is supported for releasable engagement with the park gear 182 and preventing rotation of the park gear due to the engagement (column 7, lines 34-39).

(claim 1)

Bowen does not show an epicyclic gearset connected to the input and output to produce high and low ranges with a coupler.

Brown et al. discloses a transfer case 20A having an input 56 and an output 40/30 adapted for a drive connection to at least one wheel (figure 1).

Epicyclic gearset 58 is driveably connected to the input and output and is adapted to produce alternately a high range of output speed (output connected directly to the input) and a low range of output speed.

Coupler 80 is continually driveably connected to a first component of the gearset (ring gear 64; column 5, lines 61-62, noting that the description mistakenly refers to the "first ring gear 74" when the first ring gear is reference number 64 in the drawings, and a rear carrier ring of

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planet carrier 76 is reference number 74). The coupler is also adapted for alternate drive connections to a second component of the gearset (the sun gear, which is mounted on the input shaft; column 4, lines 57-58 and column 5, lines 4-5, noting again that "first ring gear 74" should be "first ring gear 64") and to the casing of the transfer case (column 5, lines 9-11). A selector 140 is moveable alternately between a first position where the gearset produces the high range and a second position where the gearset produces the low range.

The transfer case casing 54 includes an opening in which input shaft 56 is supported through bearings. Figure 1 shows a multiple speed transmission 18 aligned with the transfer case 20. Since multiple speed transmissions include casings out of necessity and the output shaft of the transmission is adapted for connection to the input shaft 56 of the transfer case, the transmission case includes an opening aligned with the transfer case casing opening and the transmission output is driveably connected to the input through the openings.

Figure 1 shows the integrated transfer case and transmission assembly.

As best shown in figure 3, a sun gear 66 is driveably connected to the input 56.

A carrier 76 is connected to the output.

A ring gear 64 is included.

A set of planet pinions 68 is rotatably supported on the carrier 76 in meshing engagement with the sun gear 66 and ring gear 64.

The coupler is driveably connected to the ring gear 64 (through sleeve 124) and the selector is moveable alternately between a first position where the coupler completes a drive connection between the transfer case casing and the ring gear, and a second position where the coupler mutually driveably connects the ring gear and the sun gear.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Bowen to include an epicyclic gearset with coupler and aligned openings in the transfer case and transmission case in view of Brown et al. because such an arrangement is conventionally used to provide the ability to effectively drive a four wheel drive vehicle in a variety of driving conditions and aligning openings in the transmission case and

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transfer case allows use of two separate units that arranged and interconnected in a space saving manner.

Allowable Subject Matter

7. Claims 3-6, 9-12, and 14-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent 5,743,348 (Coppola et al.) April 1998 - discloses a park gear and park pawl, with details of the linkage to move the park pawl into and out of engagement with the park gear.

U. S. Patent 6,602,159 (Williams) August 2003 - discloses a transfer case having an epicyclic gearset with a ring gear that is braked to provide a low speed range and is connected to the input sun gear to provide a high speed range.

U. S. Patent 6,658,960 (Babin et al.) December 2003 - discloses details of the linkages of a gear selector moveable among positions representing operating ranges of a transmission, including a park position.

U. S. Patent 6,834,225 (Jiang et al.) December 2004 - patent belonging to the same assignee as the current invention, with a disclosure similar to that of the current application.


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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherry L Estremsky whose telephone number is (703) 308-2164. The examiner can normally be reached on Tuesday and Friday from 7:30 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on (703) 308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER
AU3681 2-18-05